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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stephen John Gibbon

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EXAMINER

PETTITT, JOHN F

ART UNIT

PAPER NUMBER

3744

NOTIFICATION DATE

DELIVERY MODE

01/08/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@crbcp.com

Office Action Summary	Application No. 10/550,569	Applicant(s) GIBBON, STEPHEN JOHN	
	Examiner John F. Pettitt	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7,11-14,16-19,23-26,30 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7,11-14,16-19,23-26,30 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1, 7, 11, 13-14, 19, 23-24, and 30** are rejected under 35 U.S.C. 102(b) as being anticipated by Grenier (US 5,412,954) hereafter Grenier.

In regard to claims 1, 19, 23-24, and 30, Grenier teaches an apparatus and method for cryogenic distillation of air, said apparatus being a fully assembled unit (Fig. 3) comprising: a first distillation column module (15, 20) within which is provided at least one cryogenic distillation column (1B); a further distillation column module (15A) within which is provided at least one further cryogenic distillation column (1C), said further distillation column module (15A) being mounted on top of and attached directly to said first distillation column module (15, 20; relative directionality only) by a connecting means (inherent as disclosed); a heat exchange module (19) within which is provided heat exchange means (2) for cooling column feed air to a cryogenic distillation temperature (column 3, lines 15-20), the heat exchange module (19) being adjacent and attached directly to the first distillation column module (15, 20) by direct contact and to the further distillation column module (15A) by a connecting means (inherent as disclosed); and at least one further processing unit (any or all of 3, 4, 5, 6) adjacent and attached directly to the first distillation column module (15, 20) by connecting means,

Art Unit: 3744

the further distillation column module (15A) by connecting means, the heat exchange module (19) by direct contact, wherein each of the at least one distillation column (1B), further distillation column (15A), said heat exchange means (2) and the further processing unit (any or all 3, 4, 5, 6) are operationally interconnected (see Fig. 3) and wherein said assembled unit (Fig. 3) is adapted to be transported as a single pre-assembled unit from a first location to a second location at a substantial distance from the first location (fully capable thereof) and the single pre-assembled unit is adapted to be erected at a site for a cryogenic air separation plant (column 1, lines 45-50; note that the system is capable of such use); wherein each module of the apparatus is attached directly to at least one adjacent module (19, 15, 20, 15A are all attached); wherein each module of the apparatus is attached in position relative the first distillation column module (15, 20; all components are relatively positioned) by a framework (19, 20, 15, 15A) of support members (inherent parts of 19, 20, 15, 15A that hold in place the flow components); and capable of being used to in the construction of a cryogenic air separation plant (column 2, lines 40-45) and produce at least 3500 metric tons/day of O₂. Grenier further teaches constructing the apparatus (column 1, lines 52-55; column 3, line 65- column 4, line 8) and transporting the assembled unit to the site for cryogenic air separation (column 1, lines 53-54; column1, line 8, 35).

In regard to claims 7, Grenier teaches that the first distillation column module (15, 20) comprises a high pressure distillation column (1B), said apparatus further comprising a second distillation column module (15) within which is provided a low pressure cryogenic distillation column (1A).

Art Unit: 3744

In regard to claim 11, Grenier teaches that the at least one further processing unit (3, 4, 5, 6) is an air purification unit (4 - column 2, lines 45-50).

In regard to claim 13, Grenier teaches that the at least one further processing unit (3, 4, 5, 6) is a compressor (3).

In regard to claim 14, Grenier teaches that the at least one processing unit (3, 4, 5, 6) is a chiller tower (6).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4-5 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grenier in view of Bracque et al. (US 5,349,827) hereafter Bracque (827).

In regard to claim 4-5, Grenier teaches all of the claim limitations of claims 4-5 but does not explicitly teach that the diameter of the column (1B) is over 3.5 meters or about 5 or 6 meters (16-19 feet). However, Grenier teaches that columns are of

Art Unit: 3744

substantial column diameters. Further, it is routine practice in the art to size the column diameter to meet the flow demands and throughput goals of the system. Finally, Bracque (827) teaches distillation column diameters of about 5 meters (column 2, lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to employ the system of Grenier with columns having diameters of 5 meters as taught by Bracque (827) for the purpose of providing a sufficiently sized column for producing the desired throughput depending on the application at hand.

In regard to claim 31, Grenier teaches all of the claim limitations, but does not explicitly teach that the method of producing at least 3500 metric tons/day of oxygen with the apparatus. However, Grenier teaches that the apparatus produces about 1000 tons / day of oxygen. Every installation will be built to produce different amounts of oxygen depending on the size of the plant selected by the designers and supportable by the market for oxygen. Therefore, clearly, in markets of higher demand for oxygen, larger plants will be designed for meeting the demand for the purpose of profitability. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of Grenier to provide at least 3000 tons/day of oxygen for the purpose of providing the desired amount of product oxygen.

6. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grenier in view of Zarate et al. (US 4,957,523) hereafter Zarate. Grenier teaches all of the limitations of claim 12 but does not explicitly teach that the air purification unit (4)

Art Unit: 3744

comprises at least two air purification vessels arranged in parallel, each vessel comprising at least one bed of carbon dioxide and/or water adsorbent material.

However, the purification system of Grenier is generically taught as such systems are well known in the art, as is taught, for example, by Zarate. Zarate teaches an air purification unit (150) comprises at least two air purification vessels (160, 170), each vessel (160, 170) comprising at least one bed of carbon dioxide and/or water adsorbent material (column 5, lines 65-67), said vessels (160, 170) being arranged in parallel and configured for use in a temperature or a pressure swing adsorption process (column 6, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Grenier with the air purification unit (150) of Zarate for the purpose of providing air purification continuously as well as regenerating one of the vessels (160, 170) during operation so that the purification system can have more production hours (relative to maintenance hours).

7. Claims 1, 7, 11, 13-14, 16-19, 23-24, 25-26, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grenier in view of Bracque et al. (US 5,461,871) hereafter Bracque (871).

In regard to claim 16-18, Grenier teaches all of the limitations of claims 16-18 but does not explicitly teach that the at least one further processing unit (3, 4, 5, 6) is provided within at least one further processing unit module. However, providing such a module is a simple extension or replication of what is practiced in Grenier; further Bracque (871) teaches an at least one further processing unit (any or all of 8, 9, 10, 14,

Art Unit: 3744

15, 17 at least) within at least one further processing unit module (1, 3) within which is provided pipe work (see lines) for operational interconnection of the further processing unit (any or all of 8, 9, 10, 14, 15, 17 at least) in fluid flow communication with other components (any of the other flow devices) of the apparatus (Fig. 1); in addition, Bracque (871) teaches a framework (connected collection) of supporting members (corners or connection portions between walls of modules 1, 3) and panels (walls) provided between adjacent support members (corners) forming at least one enclosure (housings 1, 3) within the framework (connected collection) within which is provided the or at least one further processing unit (any or all of 8, 9, 10, 14, 15, 17 at least).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the system of Grenier as discussed with the framework of Bracque (871) as discussed for the purpose of improving the simplicity of construction and of reducing the number of parts that need to be custom installed at the site.

In regard to claims 1, 7, 11, 13-14, 19, 23-24, 25-26, and 30, Grenier teaches all of the limitations of the apparatus as described above but does not explicitly teach performing the method of constructing the apparatus to produce the fully assembled unit, transporting the single pre-assembled unit to the site for the cryogenic air separation plant, and erecting the single pre-assembled unit on site. However, Bracque (871) explicitly teaches that the entire installation may be in a single framework (column 4, line 13). Further, it is common knowledge that constructing a product at a factory or manufacturing site and then shipping the product to a place of use provides the benefits

Art Unit: 3744

of quality control and ease of operation at installation. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to construct the unit and then transport the unit to a site for erection and operation for the purpose of having fewer modification steps to bring the apparatus into operation and for the purpose of controlling the manufacturing process more carefully and for the purpose of keeping the manufacturing process secret. Further, Grenier and Bracque (871) teach all of the limitations but do not explicitly teach that construction takes place at a dockside or a construction facility with access to a dockside for transportation by sea. However, it is clear that in order to build the device at a construction facility owned by the producer and then provide the device to a customer overseas one must build the device at a facility that has access to a dockside in order to provide the device over the seas as a matter of logistical and mechanical expedient. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the assembled unit from a construction site with access to the dockside for the purpose of convenient delivery of the unit over a sea.

Therefore, assuming *arguendo* that the apparatus of claims 1, 7, 11, 13-14, 19, 23-24, and 30 is not capable of performing the function of being moved after assembly, (which the examiner disagrees with) the combination of the teachings of Grenier and Bracque (871) shows that such an apparatus would be obvious to one of ordinary skill in the art, at the time the invention was made.

Response to Arguments

8. Applicant's arguments filed 10/27/2009 have been fully considered but they are not persuasive.

1. Applicant's arguments (pages 8-10) are an allegation that the system components of Grenier is transported separately and not from one location to another as a single unit adapted for erection at a site. In response to the applicant's arguments, the examiner fully disagrees as a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The apparatus is fully capable of being used and transported as claimed. Furthermore, it is noted that the transportation of an assembled unit is an obvious modification as stated in the rejection above. The examiner fully disagrees with the supposition that Grenier teaches away from single unit transportation, first because the examiner disagrees that there is support for the conclusion that the unit must be separately transported, as the invention provides two insulation systems for the stated purpose of enabling easy transportation of the apparatus as a whole (column 1, lines 45-50 and 33-35 - Note that the solution of two insulation system removes the limitation on the sizes of the systems that can be easily transported imposed by vacuum insulation of apparatus as a whole) and secondly, assuming arguendo, that Grenier does teach separate transportation of the unit components, teaching a way of transporting the unit of Grenier does not constitute a teaching away from the claimed apparatus, but is simply evidence that

Art Unit: 3744

there is another way of transporting the apparatus which, again, is a use of the system and does not patentably distinguish from Grenier. Further, the rejection above clearly shows that single unit transportation is a known technique and that it is well known to manufacture a product and then ship the product for use. There is nothing that can be identified as inventive in product delivery of a single unit, therefore, the argument is unpersuasive.

2. Applicant's arguments (page 11) are an allegation that the employment of the language "adapted to" somehow provides some structure, that remains unidentified, that is distinct from the prior art. In response to the applicant's arguments, the examiner disagrees because the broadest reasonable interpretation of the language is that the unit is capable of being transported and erected. Additionally, there is no interrelating of parts relative to the recitation of being adapted for the use of moving the unit and therefore the allegation is unpersuasive.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Pettitt whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art
Unit 3744

JFP III
December 31, 2009